

RZA3UL Azure RTOS Sample Projects

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RZ/A3UL Azure RTOS Sample Projects

- Sample Projects

No	Program file	Description
1	filex_demo_sdmmc_rza3_fsp_1.0	Sample project to check the function of FileX.
2	guix_demo_usbh_hhid_mouse_rza3_fsp_1.1	Sample project to check the function of GUIX and USBX.
3	netx_demo_http_server_rza3_fsp_1.0	Sample project to check the function of NetX duo.
4	usbh_demo_hcdc_rza3_fsp_1.0	Sample project to check the function of USBX HCDC.
5	usbh_demo_hhid_rza3_fsp_1.0	Sample project to check the function of USBX HHID.
6	usbh_demo_hmsc_rza3_fsp_1.0	Sample project to check the function of USBX HMSC.
7	usbh_demo_huvc_netx_http_server_rza3_fsp_1.0	Sample project to check the function of USBX HUVC.
8	RZA3UL_demo_azure_iot_pnp_1.0	Sample project to check the function of Azure IoT Middleware.

- Development Environment

e ² studio	Version: 2023-04 (23.4.0) *1
RZ/A FSP	Version: 2.0.1

For more information to set up your development environment, refer to the following document.

➤ [Getting Started with RZ/A Flexible Software Package V2.01 \(renesas.com\)](#)

***1 It does not work with latest version of e² studio (e² studio 2023-07). Please use e² studio 2023-04.**

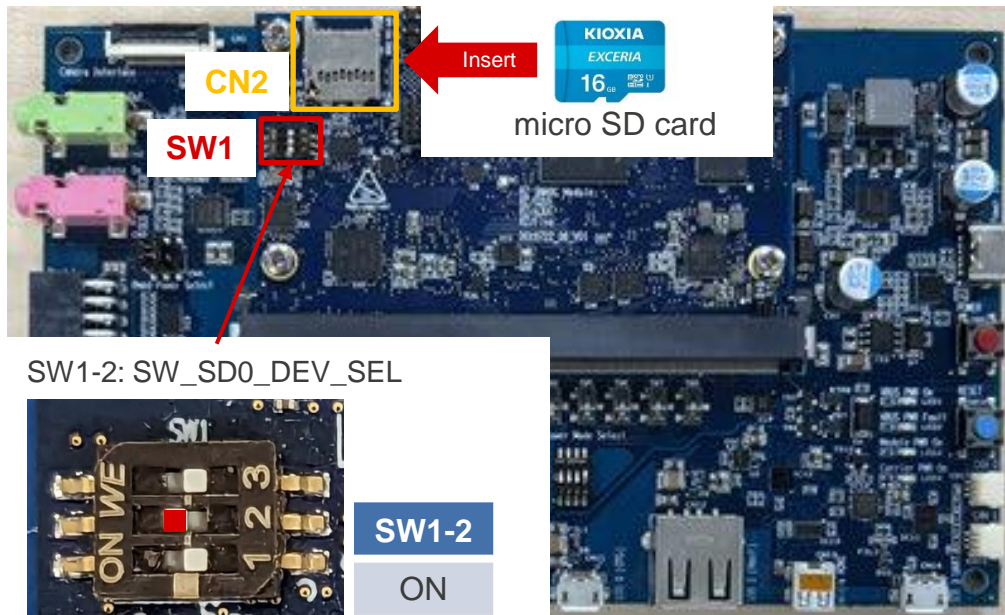
Sample 1: filex_demo_sdmmc_rza3_fsp

This sample project outputs the status to the console while verifying SD card read/write.

How to Execute The Sample Project

1. Set the SW1 of the board.
2. Start the terminal software.
3. Download the project and start debugging.
4. Insert SD card into the board.
5. Confirm the following message is displayed on the terminal.

Board Setting



Message on Terminal

```
COM4 - Tera Term VT
File Edit Setup Control Window Help
Initial Program Loader v1.2.0
Built : 08:34:08, Dec 16 2022
setup DDR (Rev. v3.0.0)
Configure QSPI Flash Memory
Jump to Application
Waiting for media insert...

Media is inserted!
Start FileX testing...
Initializing FileX...
Setting up media...
opening media...
Checking media...
Trying to create a file: test_file.txt...
Opening the file on write mode...
Moving the cursor to the beginning of the file...
Writing the file to media...
Closing the file...
Reopening media...
Reading the file content from media...
File reading succeeded, and the content is:

Do not go gentle into that good night,
Old age should burn and rave at close of
```

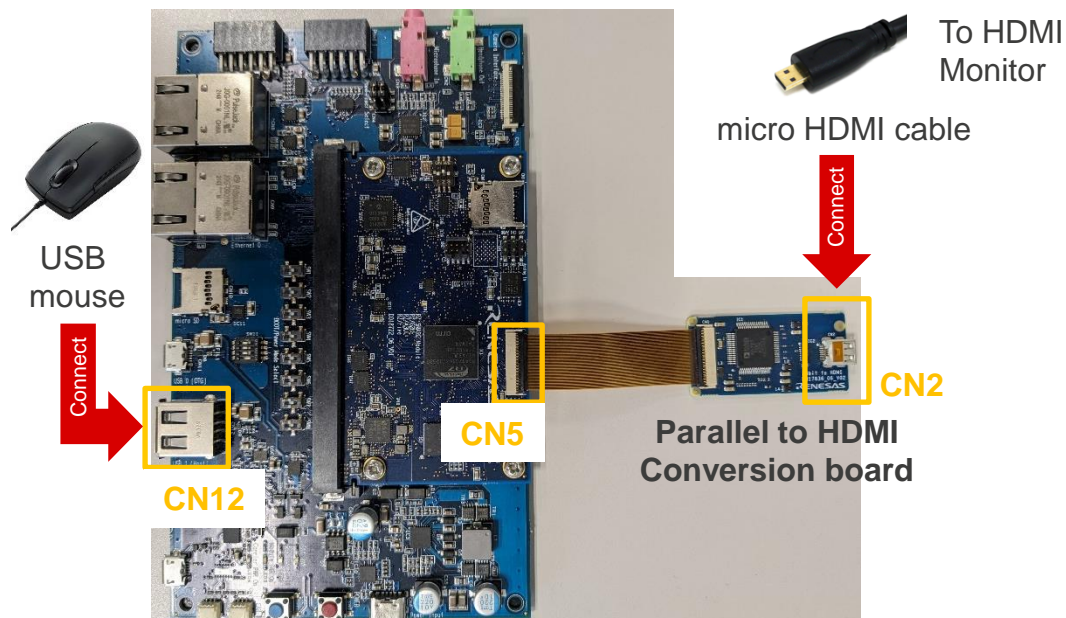
Sample 2: guix_demo_usbx_hhid_mouse_rza3_fsp

This sample project displays the GUI on the HDMI monitor and can be operated with the USB mouse.

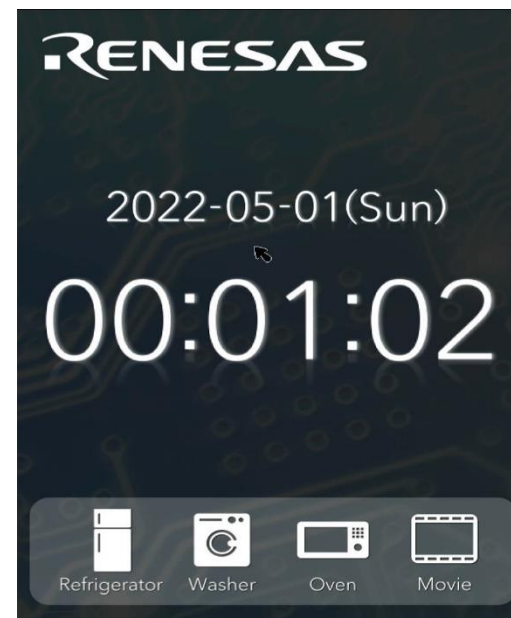
How to Execute The Sample Project

1. Connect the HDMI monitor to the board via **Parallel to HDMI Conversion board**.
2. Download the project and start debugging.
3. Connect the USB mouse to the board.
4. Confirm that the following screen is displayed on the HDMI monitor.

Board Setting



Displayed Screen



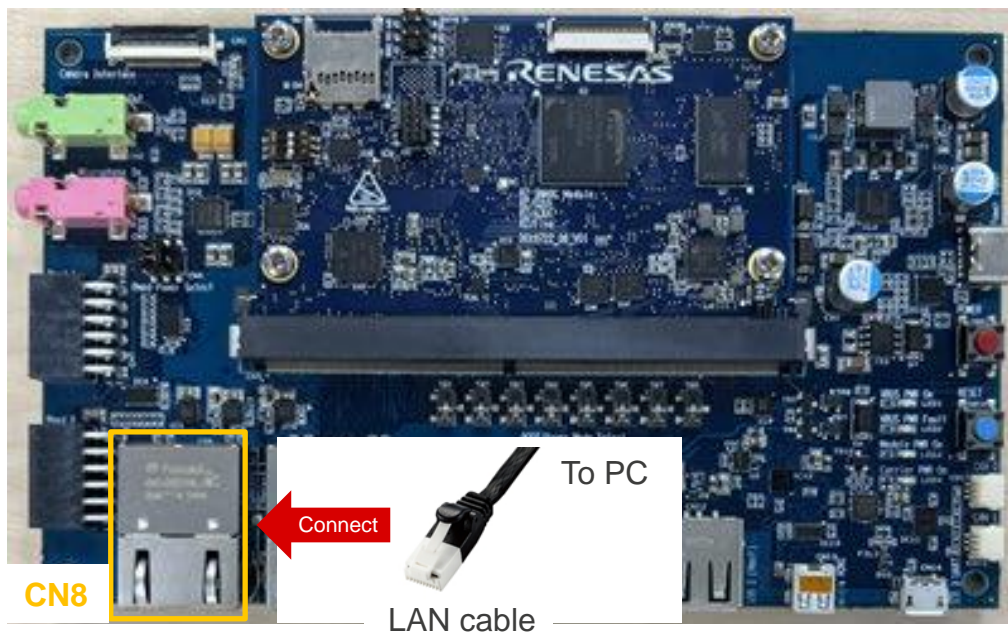
Sample 3: netx_demo_http_server_rza3_fsp

This sample project works as an HTTP server and responds to HTTP requests from browser.

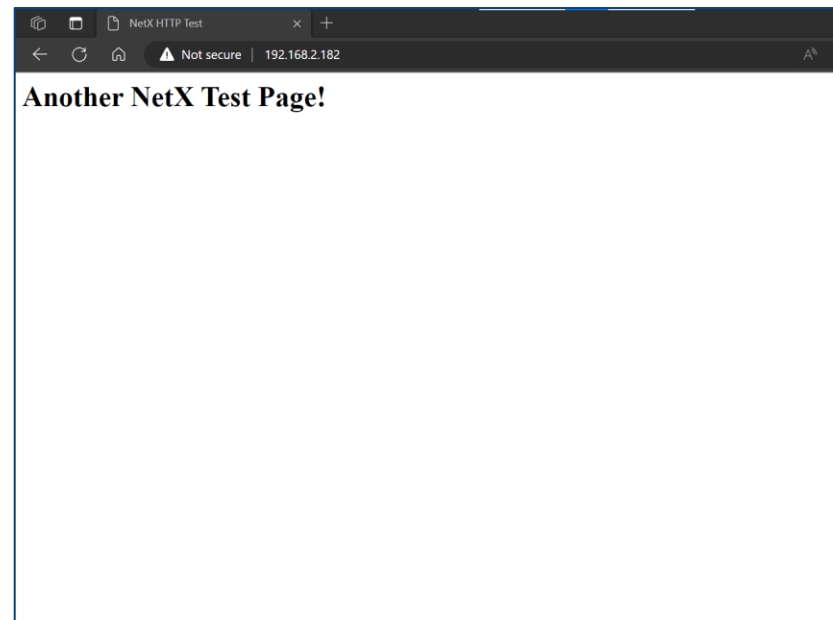
How to Execute The Sample Project

1. Connect the Ethernet connector of the PC and the board.
2. Configure a static IP address (refer to [_](#))
3. Download the project and start debugging.
4. Access the IP address “192.168.2.182” and confirm that following browser is displayed in the browser.

Board Setting



Browser Display



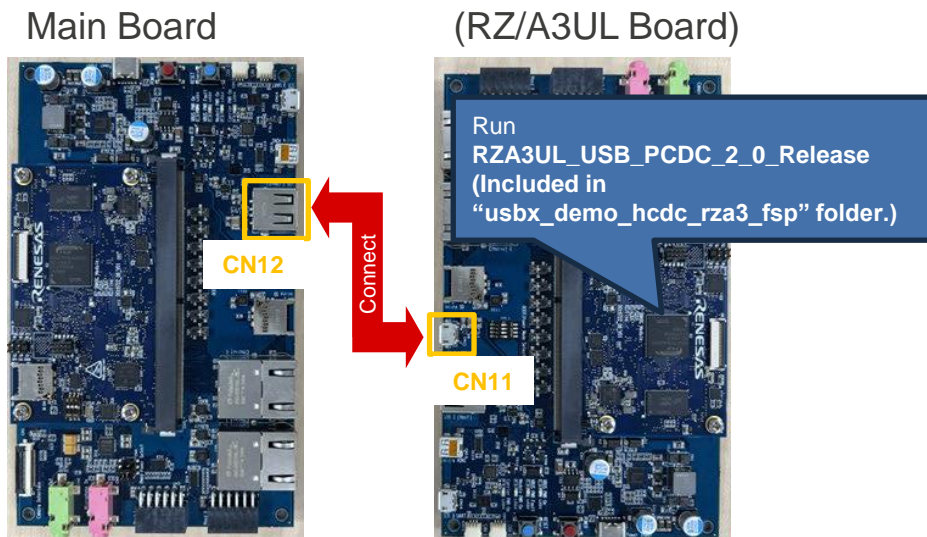
Sample 4: usbx_demo_hcdc_rza3_fsp

This sample project sends an AT command and displays the response in the log when connect a device that acts as a PCDC.

How to Execute The Sample Project

1. Run **RZA3UL_USB_PCDC_2_0_Release** project on one RZ/A3UL board to act as PCDC device.
2. Start the terminal software.
3. Download the project and start debugging.
4. Connect the PCDC device to the board.
5. Confirm the following message is displayed on the terminal.

Board Setting



Message on Terminal

```
COM30 - Tera Term VT
ファイル(F) 編集(E) 設定(S) コントロール(O) ウィンドウ(W) ヘルプ(H)
Initial Program Loader v1.2.0
Built : 08:34:08, Dec 16 2022
setup DDR (Rev. v3.0.0)
Configure QSPI Flash Memory
Jump to Application
Init completed!

Please insert the USB CDC ACM device.
USB CDC ACM device is inserted
write length 4
received(4) : AT

[]
```

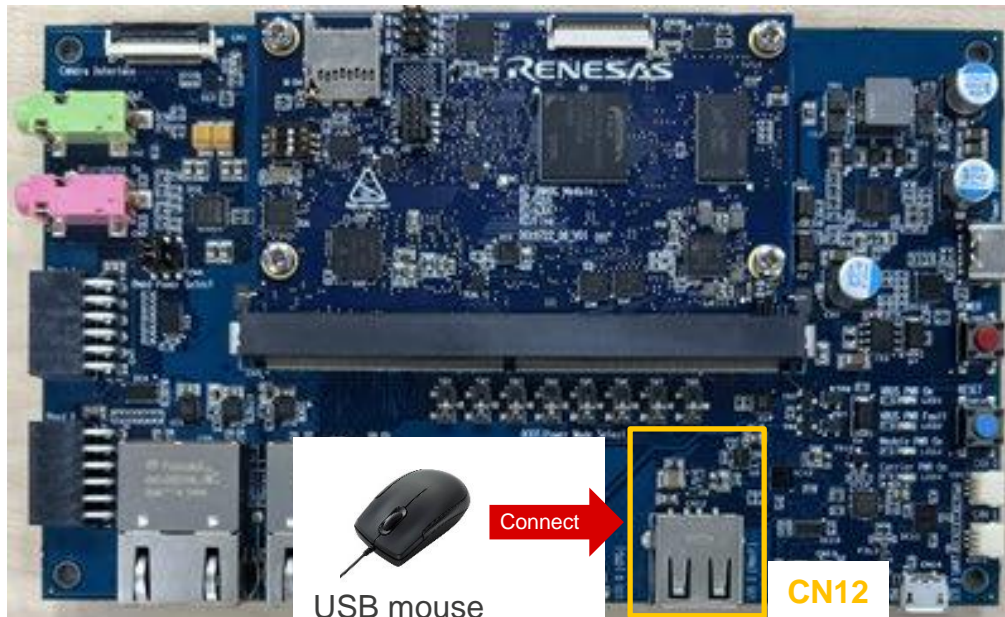
Sample 5: usbx_demo_hhid_rza3_fsp

This sample project detects the USB mouse and output the mouse position information.

How to Execute The Sample Project

1. Start the terminal software.
2. Download the project and start debugging.
3. Connect the USB mouse to the board.
4. Confirm the following mouse position information is displayed on the terminal.

Board Setting



Message on Terminal

```
COM4 - Tera Term VT
File Edit Setup Control Window Help
Initial Program Loader v1.2.0
Built : 08:34:08, Dec 16 2022
setup DDR (Rev. v3.0.0)
Configure QSPI Flash Memory
Jump to Application
Init completed!

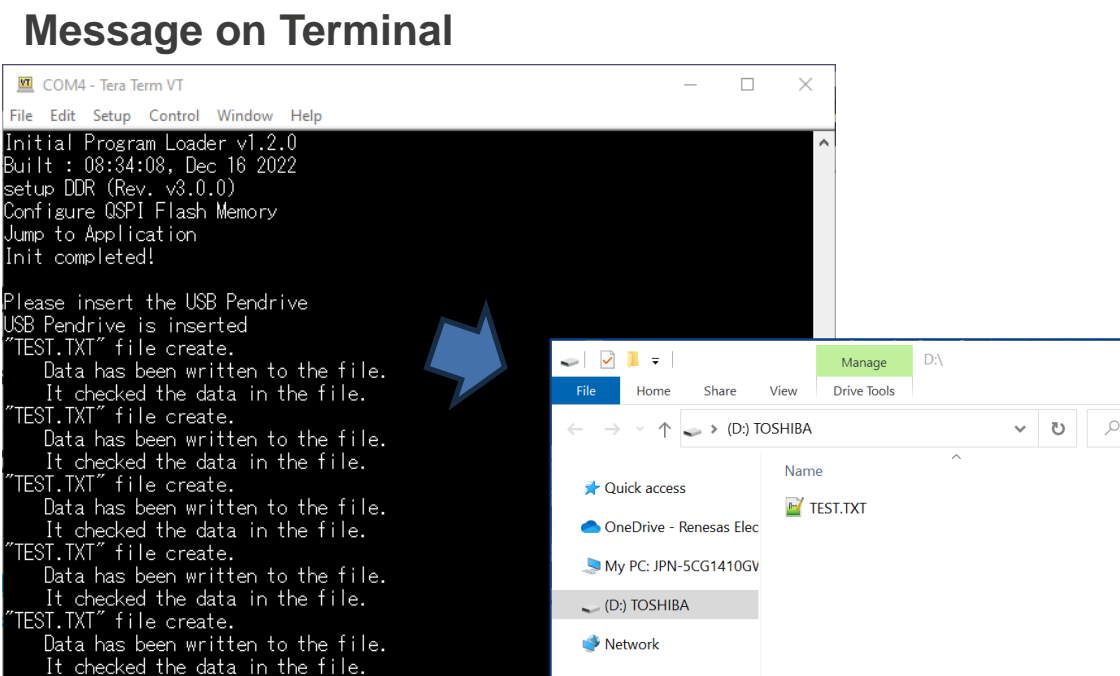
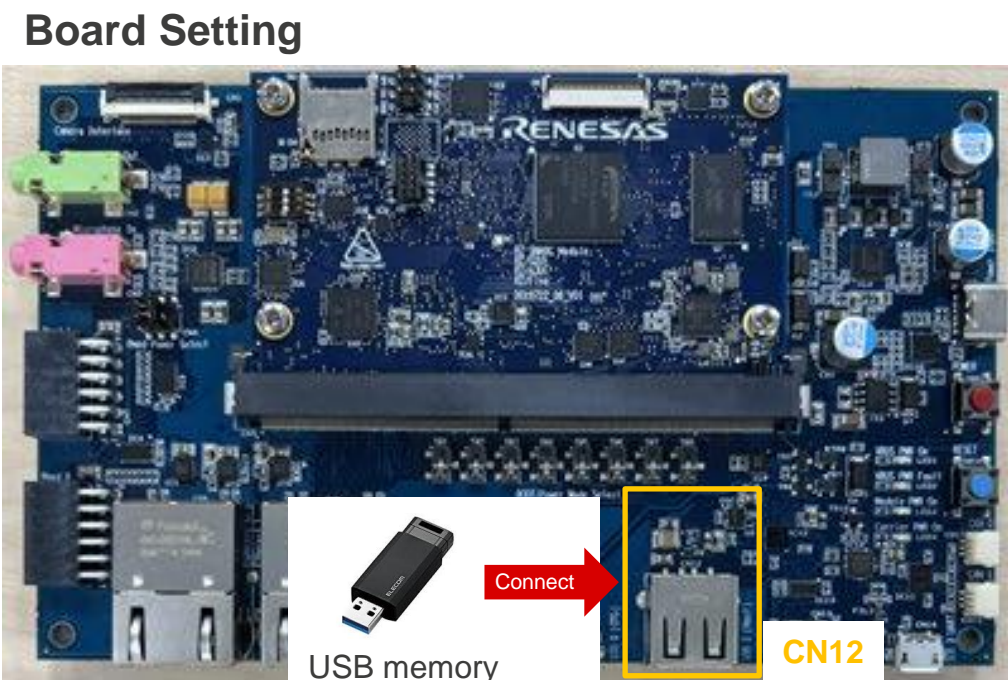
Please insert the USB Mouse
USB Mouse is inserted
Mouse Position<0/0>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
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Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
Mouse Position<-127/127>
```


Sample 6: usbx_demo_hmsc_rza3_fsp

This sample project creates, reads and writes files to the connected USB memory.

How to Execute The Sample Project

1. Download the project and start debugging.
2. Connect the USB memory to the board.
3. Confirm that following information of the files in the connected USB memory is displayed on the terminal.

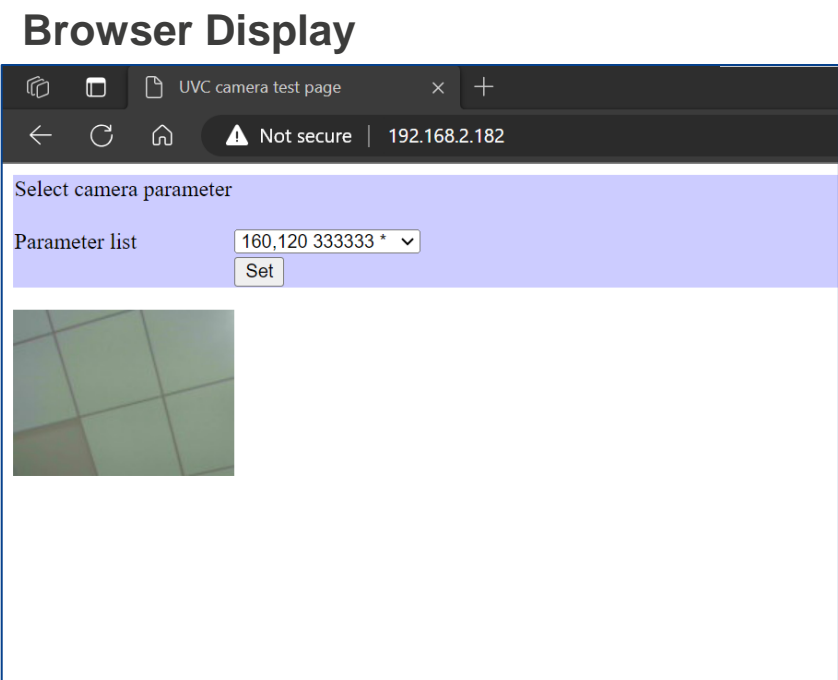
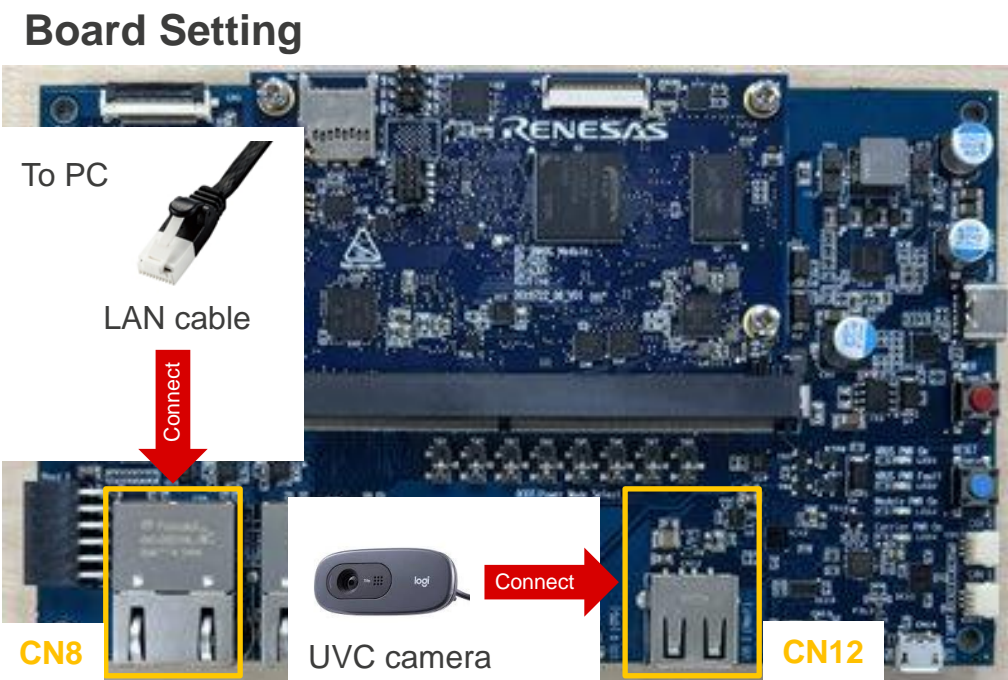


Sample 7: usbx_demo_huvc_netx_http_server_rza3_fsp

This sample project displays the camera image on the HTTP server in real time.([Note](#))

How to Execute The Sample Project

1. Connect the Ethernet connector of the PC and the board.
2. Connect the UVC camera to the board.
3. Configure a static IP address (refer to [_*](#))
4. Download the project and start debugging.
5. Access the IP address “192.168.2.182” and confirm that camera image is displayed in the browser.



Sample 7: usbx_demo_huvc_netx_http_server_rza3_fsp (Note)

Due to the bug of FSP, **the following files must be modified** to execute this sample project.
(They have been already modified for the released project.)

ux hcd ehci request isochronous transfer.c	
row	
154:	<div><div><pre>if (request_list == UX_NULL) { /* Link to head. */ (*head) = transfer_request; (*tail) = transfer_request; (*first_new) = transfer_request; } else { /* Link to tail of the list. */ (*tail) -> ux_transfer_request_next_transfer_request = transfer_request; /* In case there is nothing to load, set new ones. */ if (*first_new == UX_NULL) *first_new = transfer_request; } /* Move tail until it's real last one. */ while((*tail) -> ux_transfer_request_next_transfer_request != UX_NULL) (*tail) = ((*tail) -> ux_transfer_request_next_transfer_request);</pre></div><div>Before</div></div>
	<div><div><pre>if (request_list == UX_NULL) { /* Link to head. */ ((*(ULONG*)head)) = (ULONG)transfer_request; ((*(ULONG*)tail)) = (ULONG)transfer_request; ((*(ULONG*)first_new)) = (ULONG)transfer_request; } else { /* Link to tail of the list. */ ((UX_TRANSFER*)(*(ULONG*)tail)) -> ux_transfer_request_next_transfer_request = transfer_request; /* In case there is nothing to load, set new ones. */ if ((*(ULONG*)first_new) == UX_NULL) (*(ULONG*)first_new) = (ULONG)transfer_request; } /* Move tail until it's real last one. */ #if 1 while(((UX_TRANSFER*)(*(ULONG*)tail)) -> ux_transfer_request_next_transfer_request != UX_NULL) ((*(ULONG*)tail)) = (ULONG)(((UX_TRANSFER*)(*(ULONG*)tail)) -> ux_transfer_request_next_transfer_request); #else while((*tail) -> ux_transfer_request_next_transfer_request != UX_NULL) (*tail) = ((*tail) -> ux_transfer_request_next_transfer_request); #endif</pre></div><div>After</div></div>
ux hcd ohci periodic tree create.c	
82:	<div><div><pre>UX_OHCI_ED *ed_list[32]; UX_OHCI_ED *ed_start_list[32];</pre></div><div>Before</div></div>
121:	<div><div><pre>ed_list[current_list_entry * 2] -> ux_ohci_ed_next_ed = ux_utility_physical_address(ed); ed_list[(current_list_entry * 2) + 1] -> ux_ohci_ed_next_ed = _ux_utility_physical_address(ed);</pre></div><div>After</div></div>
	<div><div><pre>((UX_OHCI_ED*)(ed_list[current_list_entry * 2])) -> ux_ohci_ed_next_ed = _ux_utility_physical_address(ed); ((UX_OHCI_ED*)(ed_list[(current_list_entry * 2) + 1])) -> ux_ohci_ed_next_ed = _ux_utility_physical_address(ed);</pre></div><div>After</div></div>

Sample 8: RZA3UL_demo_azure_iot

This sample project connects to Azure IoT Hub using Azure IoT Middleware for Azure RTOS. It supports IoT Plug and Play with multiple components.

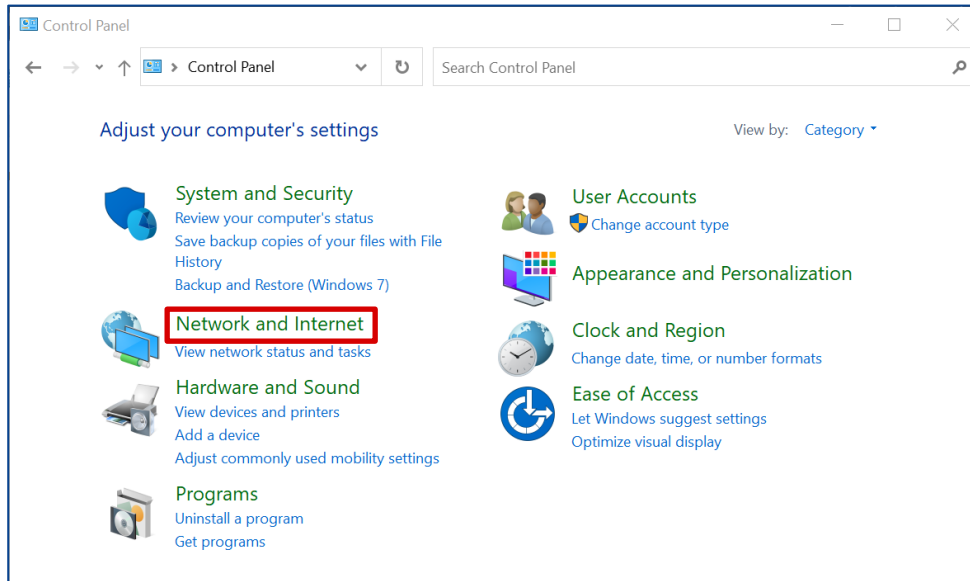
RZ/A3UL EVK is certified "[Azure Certified Device](#)" and "[IoT Plug and Play](#)" certifications, and is listed in "[Azure Certified Device catalog](#)".

How to Execute The Sample Project

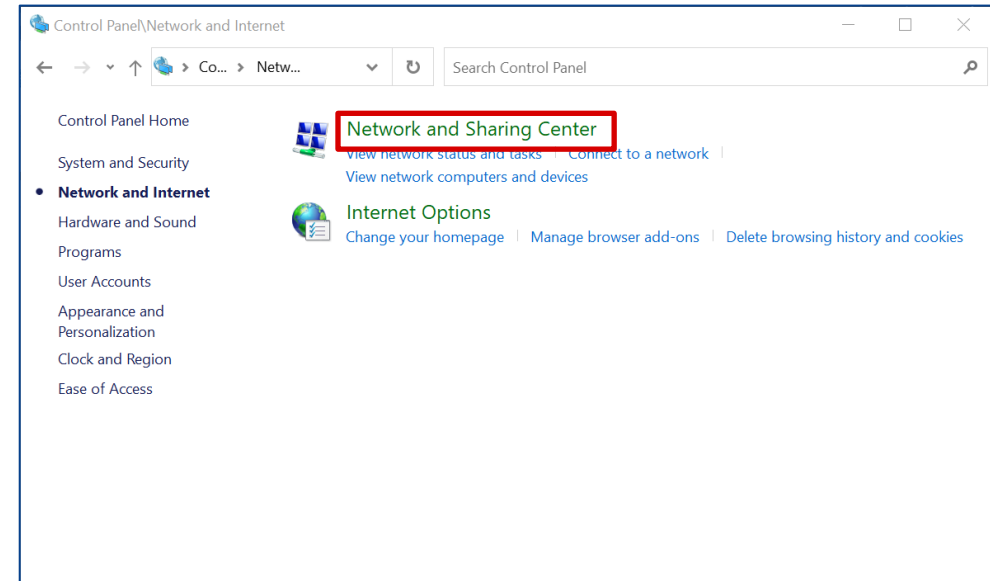
Please refer to Get started guide of "[Azure Certified Device catalog](#)".

Configuration of Static IP Address(1/3)

Configure the static IP address refer to the following procedure.



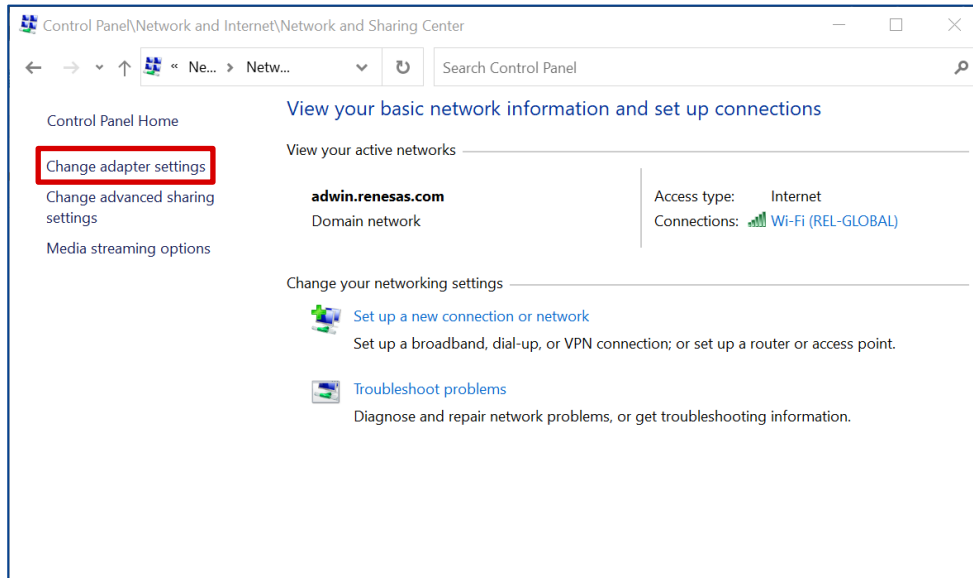
1. "Control Panel"
2. "Network and Internet"



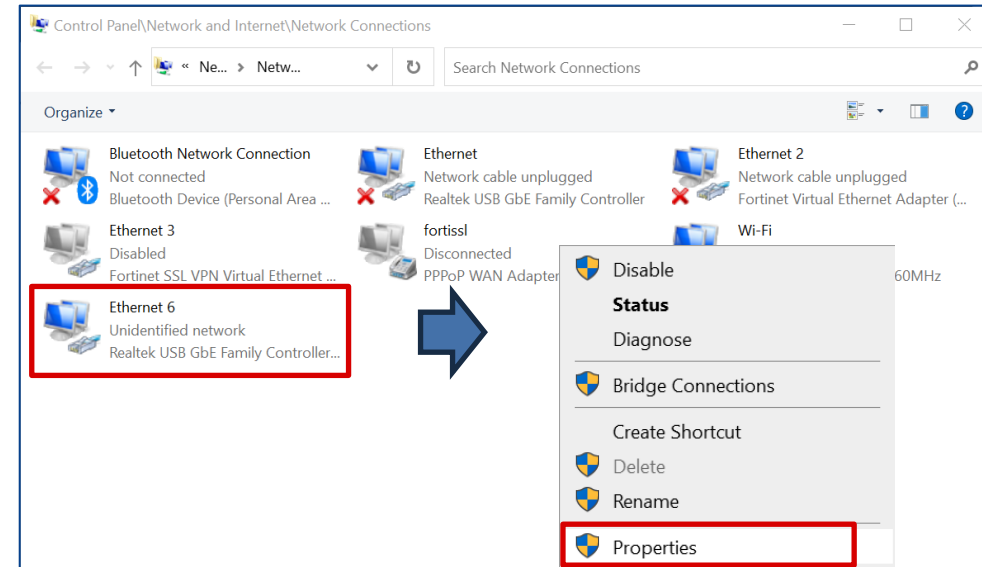
3. "Network and Sharing Center"

Configuration of Static IP Address(2/3)

Configure the static IP address refer to the following procedure.



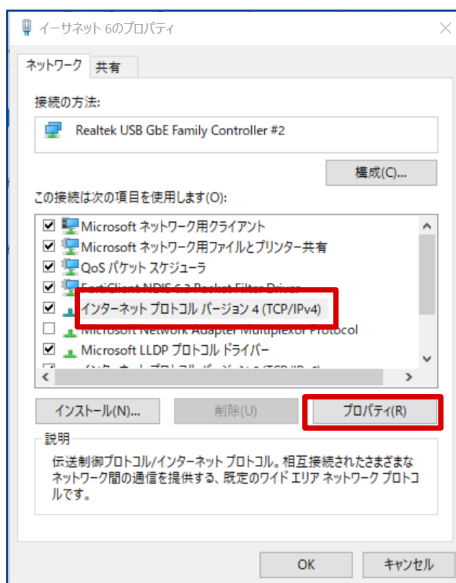
4. “Change adapter setting”



5. Right click the corresponding ethernet.
* The one that changed state when the board was connected.
6. “Properties”

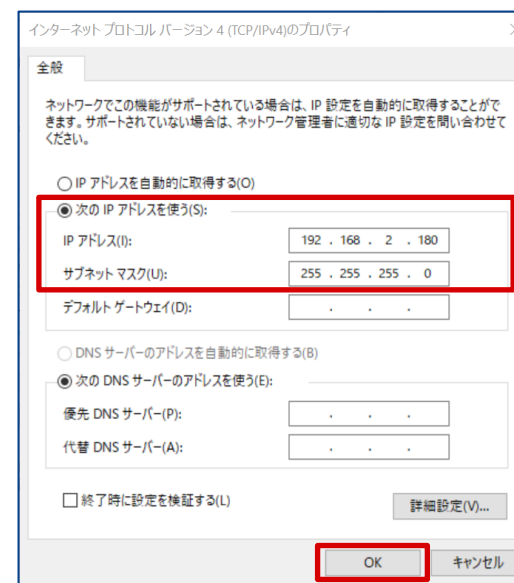
Configuration of Static IP Address(3/3)

Configure the static IP address refer to the following procedure.



7. “Internet Protocol Version 4(TCP/IPv4)”

8. “Property(プロパティ)”



9. IP address(IP アドレス) → 192:168.2.180

Subnet mask(サブネットマスク) → 255:255:255:0

10. “OK”

[Renesas.com](https://www.renesas.com)